



VIMSS:ESPP2 Scientific Research Project Management

Amy Shutkin^{1,2}, Adam P. Arkin^{1,2,3}, Terry C. Hazen^{1,2}

¹Lawrence Berkeley National Laboratory, ²VIMSS (Virtual Institute of Microbial Stress and Survival) <http://vimss.lbl.gov/>, ³University of California, Berkeley



INTRODUCTION

The success of a mature scientific research program depends on maintaining an agile Performance Monitoring Project Management structure, which served the flagship VIMSS:ESPP effectively, while implementing more formal risk management oversight practices as proposed new technologies are integrated into the pre-existing core research groups. Project Management offers the stability of a rational and logical process for managing work in a virtual research institute. This (re)new research project initiated at three national laboratories and seven universities from coast to coast and is comprised of ~75 individuals collaborating within three core research groups: Applied Environmental Microbiology Core (AEMC), Functional Genomics and Imaging Core (FGIC) and Computational and Systems Biology Core (CSBC). We have found that there is a balance between tight project management to create synergy, focus and continuity to the project and well-tracked individual investigator-driven initiatives and follow-up that must be struck to maintain creative engagement and productivity of the project team, all while remaining vigilant against scope creep. It has been our experience that frequent and rapid communication at different levels with different media is critical to exploiting the scale and diversity of the team project's capabilities for this multidisciplinary, multi-institutional collaboration.

Project Management Plan Development & Implementation

The schedule is a crucial element of the Project Management plan and a key document for the Integrated Project Team (IPT). It shows the relationships between the individual team activities and the research and publication goals and milestones that need to be achieved on a dynamic timeline. The project tracking is reviewed during monthly audio/net conferences and is readily viewed and routinely updated via our shared wiki, a website that allows for collaborative editing.

In addition, we recognize that new discoveries made during the period of performance may be so significant that a high level review of the individual elements of the scientific program may be necessary. Due to the positive or negative impacts this could have on the project, it is advantageous to implement a trend program. Trend programs provide an early warning of conditions that could affect the outcome of a project (scope, cost or schedule). If the trend does have an impact, it will be incorporated into the baseline through a formal process. Alternatively a corrective action could resolve the trend with no impact to the overall schedule. Team leaders are thus responsible for alerting their core project PI as soon as they have made a new discovery or breakthrough, so that these implications can be evaluated.

RISK IDENTIFICATION & MANAGEMENT

Risk assessment and management is a knowledge-based function. During the Risk Planning stage the PIs select key Steering Committee members for a Risk Selection Team (RST). The RST is equipped with the appropriate knowledge and experience to evaluate the risk areas associated with a specific task. The RST determines how identified risks will be handled. For example, they may be reduced, accepted, avoided or transferred. The expected outcome of the risk event can be reduced by lessening the probability of the occurrence. Risk contingency alone on research and development budgetary estimates can range from +15% to +40% (DOE-G 430.1 chapter 20.F.2) because data required for the estimates may not be available due to the "state-of-the-art" nature of the project. The contingencies, however, become smaller as the project matures and becomes better defined. Finally, risks are actively monitored. The RST reviews risk handling strategies and projects forward to prevent or mitigate future risks.

TEAM SCIENCE APPROACH

